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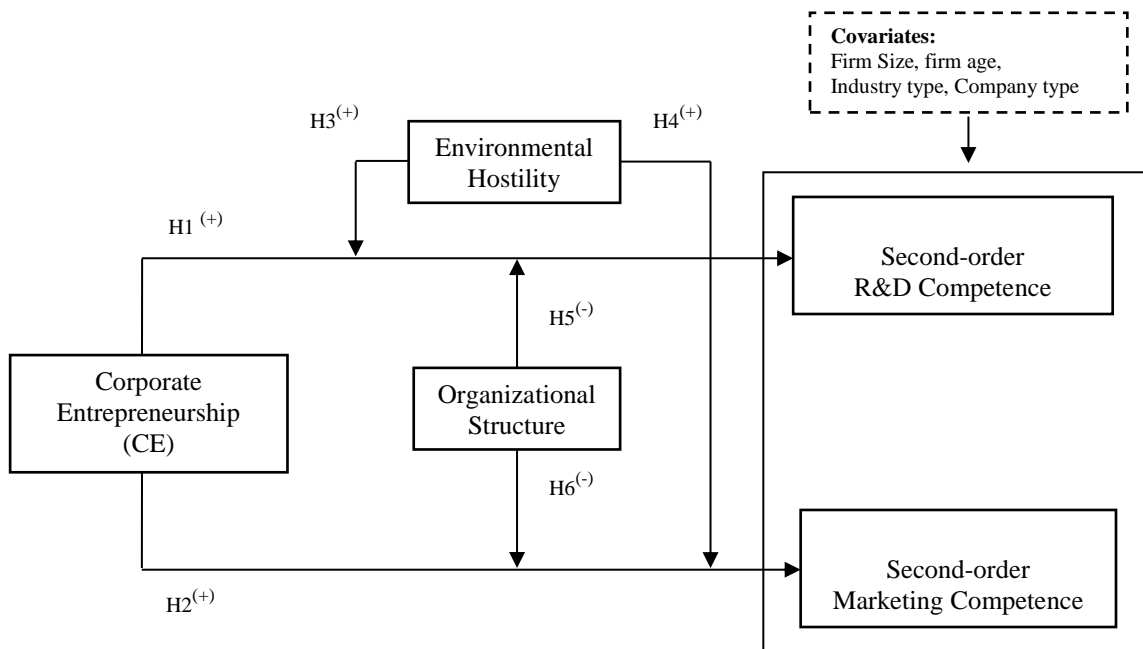
# Can Corporate Entrepreneurship Form Second-order Competences? The Role of Internal and External Contingencies.

## ABSTRACT

The influence of Corporate Entrepreneurship (CE), and second-order competences (SOC) on a firm's performance are largely acknowledged. Yet, the association between CE and SOC remains largely under-investigated, less so potential moderators of their relationship. Drawing on the resource-based view of the firm, we study whether and how second-order R&D and Marketing competences are influenced by CE. We theoretically argue, and empirically test, the positive influence of CE on SOC. We also find that while such gains are enhanced as environmental hostility increases, they are diminished by the interplay of organizational structure. Data collected from executives of firms from knowledge-intensive industries, analyzed using regression modeling, supports our predicted model's main arguments and offers some support for contingency relationships. Several novel theoretical and managerial implications are discussed.

## KEY WORDS

Corporate Entrepreneurship, Second-order Competences, Organizational Structure, Environmental Hostility, Resource-based view



**Figure 1 Schematic representation of a firm-level entrepreneurship model in context of competence development**

## THEORETICAL FRAMEWORK

We examine and synthesize a firm-level entrepreneurial framework that is inspired by Zahra, Nielsen, and Bogner (1999) while integrating an essential and a critical strategic resource of organizations (Barney, 1991) – second-order competences (Danneels, 2008). The primary focus of this study is on organizational<sup>1</sup> second-order competences (SOC), defined as a firm's competence to build new competences – and in particular, second-order R&D and marketing competences. By SOC of the firm, we refer to a firm's capacity to be able to “identify, evaluate, and incorporate new

<sup>1</sup> In this research, whilst we use the terms “organizations” and “firm” interchangeably, they have same meaning. This is done only for the purpose of adding variety to text and avoiding monotony.

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technological and/or customer competences into the firm” (Danneels, 2002: 1097). These set of competences are differentiated from first-order competences that are the set of skills to perform tasks allowing the firm to continue its current activities (Danneels, 2015). Said differently, SOC are an important form of organizational resources reflecting its ability in building new competences such as second-order R&D and marketing competences- exploring and building new technologies and new markets respectively (Danneels, 2008). Subscribing to the resource-based view (RBV), we support that argument that it is only when a firm is able to successfully secure valuable, rare, inimitable, and non-substitutable, known as internal (VRIN) resources, that it will be able to sustain its competitive posture and economic rent performance (Alvarez and Barney, 2001; Barney, Ketchen, and Wright, 2011; Penrose, 1958). Towards that end, we examine the influence of Corporate entrepreneurship (CE) - viewed in this study as a composite formative construct (Covin and Lumpkin, 2011), reflecting such entrepreneurial actions as innovation, strategic renewal, and corporate venturing, on different SOC. In addition, we argue that such gained benefits will be influenced by (1) adversity of external environment and (2) organizational structure, as (Figure 1) illustrates.

Development of firm competences is an essential concept in entrepreneurship but extant research on it lacks consensus on how it associates with various organizational entrepreneurial phenomena, and an integrative and parsimonious model is yet to emerge. In 1999, Zahra, Neilsen and Bogner proposed a model capturing the cascade effects of CE, while accounting for a firm’s various external and internal factors, on “competence” of the firm. In their model, they also argued for the important roles of external environment and internal organizational factors-antecedent accounts promoting CE. But neither an empirical investigation, nor an improved parsimony of their proposed model, to our knowledge, has yet been achieved. Kokash, Fayolle, and Guedri (2016) did articulate the direct effect of CE, and its various forms (Kokash and Guedri, 2013) on different SOC types. Yet again, proposed frameworks of those researchers, though valued, lacked organizational contingencies for extended generalization. This study aims to address this gap.

Informed by the resource based perspective of the firm (Barney *et al.*, 2011; Danneels, 2008; Penrose, 1958) and notion of Schumpeterian competition (Schumpeter, 1934), we argue, develop, and then, test an improved model of firm-level entrepreneurial actions that directly associates CE with SOC while accounting for two important organizational contingencies.

This research contributes (1) to entrepreneurship literature by proposing a simplified parsimonious model of CE and SOC association. As such, we respond to calls of Zahra (2007, 2015) and of Wiklund *et al* (2011) to integrate an emerging phenomenon and a promising theory - competence development and resource-based view perspective- respectively; (2) The proposed model integrates two contingency factors. Researchers have repeatedly emphasized these factors for their significant impacts on organizations (Burns and Stalker, 1961; March and Simon, 1958; Mintzberg, 1973; Thompson, 1967, 1961). Therefore, our framework and model proposed improve and extend explained variance of CE and SOC association, while accounting for contingencies and with measurable magnitudes; and lastly, (3), we aim to broaden our understanding on how and in which way, SOC could be envisioned as entrepreneurial opportunities that an organization can pursue while developing its repertoire of competence-based competitive advantage. As a result, SOC can be viewed as entrepreneurial opportunities of economic rent and growth values. Specifically, a firm’s efforts to extend its competences are “specific and identifiable processes” (Barreto, 2010: 260) with a central role to upgrade and update key internal elements, change according to market dynamics, and rely on organizational repertoire of knowledge (Eisenhardt and Martin, 2000). Consequently, assumptions of development of a firm’s SOC are of dynamic nature and are (re)engineered through idiosyncratic path dependencies as a firm manifests different strategic entrepreneurial actions and postures to sustain and extend strategic competitiveness. Said differently, SOC entrepreneurial growth opportunities would influence decisions on strategic human resource

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allocation, upgrade and (or) growth and profit strategies that sets the trajectory for either organic growth of R&D or seeking external R&D resources via various forms of alliances, mergers or acquisitions.

### **Towards a moderated framework of corporate entrepreneurship and SOC**

Resource-based theory posits that companies explore and integrate their unique internal resources and idiosyncratic skills to develop a sustained competitive advantage to allow them to survive, and attain large and defendable profits and growth (Barney, 1991; Penrose, 1958; Wernerfelt, 1984). Creating and sustaining firm competences is, on one side, a must in today's organizations. Firms are required to be *competence competent* that, in itself, is an essential capability. On the other side, to manage repertoire of competences is far from a straightforward endeavor. There are no ready-made recipes. The most carefully developed competences often disintegrate because of different influencing endogenous and exogenous factors.

To illustrate, biopharmaceutical industry, for instance, is a prominent knowledge-intensive sector driven by variety of capabilities in innovation, venturing, and development of new product and services of its competitive players. These organizations engage either in one or in many of the various subsectors of this industry such as biotech, medical devices, and drug development and manufacturing; and within different technique specializations such as proteins and molecules, cell tissue and culture, and nanotechnology, just to name a few (OECD, 2005). In the US context, this industry enjoys an annually economic output of \$ 790 billion and is, by far, the largest sector investing in R&D with over 20% of all R&D funded by domestic business (PhRMA, 2014). In figures, R&D investment, in the biopharmaceutical industry, (1)-has increased from \$ 2.0 billion, in 1980, to an estimate of over 51.0 billion, in 2013, representing an over 25-fold increase for the past three decades; with over half a trillion dollars between 200 and 2013, (2)has a ratio of R&D spending per employee compared to overall manufacturing industries of 10:1, (3) has only one out of five marketed drugs generating a revenue with a break-even or profit margin to that of R&D investment, (4)the average time scale to develop a drug is about twelve years, and finally (5) continuous decline of traditional venture capital investment in biosciences (PhRMA, 2014). In the face of critical decline of traditional venture capital, organizations have come up with contingency strategies by reverting to internal resources to reduce this financial gap. For example, the largest 30 biopharmaceutical companies have mobilized their corporate venture capital resources to support internally developed early-stage projects. Such commitments has risen from 50% to 63% between 2007 and 2013 respectively (von Krogh *et al.*, 2012). Those researchers further argue that such an internal financial initiative does help organizations to develop, sustain, and advance innovation and entrepreneurship in the industry.

It is not an exaggeration to claim that the above anecdote has become an increasingly predominating trend in other such sectors as information technology and telecommunication. In essence, an organization that does not sustain and (or) build a competence repertoire to be compatible with contemporary and changing factors as per the above dynamic mentioned earlier, per say, will face serious consequences. It will experience disruptions not only in product or service delivery, but also will be prone to high risk of its competences be outdated, and ultimately, experience constrained growth or, even the firm to disappear.

Information is heterogeneously distributed among market players and not all organizations have (1) the same and/or (2) complete- information, and therefore, with "...some irreducible uncertainty remains in an industry, firms will be unable to anticipate perfectly which particular changes in an industry will cause a revolution or which firm or firms will be the sources of this change" (Barney, 1986: 796). This differentiates the leading firm(s) - those that have successfully developed, through their strategic forward-thinking and efforts, idiosyncratic capacities and resources to earn a Schumpeterian competition- from other competitors in the industry. Other firms that possess different idiosyncratic resources and capacities would have the ability to adapt and follow the lead, while those that lack either, will simply disappear.

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So an entrepreneurial firm puts efforts and mobilizes necessary resources to clarify such ambiguity and reduce uncertainty of these insights by securing the rightful information; the latter two remain largely unexplored by the competitors (Amit and Schoemaker, 1993). This is achieved from sensing and capturing various signals and aspects of its environment (Covin and Lumpkin, 2011; Covin and Miller, 2014) and from having appropriate organizational structure (Miller, 2011) in place. As such, a firm's manifestation of CE creates the tendency to explore new competences that lead to promising future performance, and also, to prevent the firm from falling into a "competency trap" (Levinthal and March, 1993) and ultimately demise.

To reveal CE different influence, along with the indispensable interplay of such organizational contingencies as environment hostility and organizational structure, on the development of a firm's SOC, we integrate key literatures on corporate entrepreneurship, RBV arguments, and competence development from strategic management. These literatures broadly view development of a firm's competence as a key function of organizational strategy and growth opportunities. Given the scarce attention to build a comprehensive, integrative, and testable framework of these constructs as compared to proposed models by Zahra, Nielson, and Bogner (1999) and by Dess, Ireland, Zahra and Floyed (2003), our primary focus is not only on what and how CE and SOC are directly associated, but also on how such an association is influenced by important organizational contingent factors.

For CE activities to work as performance and growth mechanisms (Bierwerth *et al.*, 2015), it is fundamental that we investigate what and how firms develop their competence repertoire while integrating organizational contingencies. We acknowledge, and do not underestimate, the importantly established positive correlates between CE activities on performance, and over time (Zahra and Covin, 1995). Yet, our goal is to propose an improved model with specific correlates that will extend our understanding of entrepreneurship in context on firm competences, that are in turn, the antecedents to a firm's financial and non-financial performance (Zahra et al, 1999).

In addition, our proposed relationships will provide insights with important managerial implications. Executives constantly face pressing competitive matters, issues and problems because of changes to market regulatory policies and clients increasing demands. These changes and demands are increasingly enhanced by diffusion and accessibility to knowledge at much lower cost, and most of the time cost free. To sustain their organizational competitive advantage is a constantly mounting challenge. This research aims to provide mechanisms and tool that benefit managers to find answers to these various challenging matters.

In general, we assume that a firm has a combination of basic competences (Danneels, 2015) that allows them to primarily exist in the industry where they operate. But we also assume that firms have a different set of competences- this research calls them second-order competences- and where firms differ to be "competence competent" (Danneels, 2008), to build sustainable competitive postures (Alvarez and Busenitz, 2001; Barney, 1991).

As firms adopt various corporate entrepreneurial activities- or strategic orientation; these entrepreneurial postures will have a direct positive relationship to the firm's repertoire of competence development. Specifically, our first group of hypotheses predicts the following:

***Hypothesis (H1): CE has a positive impact on organizational second-order R&D competence.***

***Hypothesis (H2): CE has a positive impact on organizational second-order Marketing competence.***

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Additionally, for SOC's to work as mechanisms of entrepreneurial growth opportunities of the firm, such important accounts of environmental hostility and organizational structure play important moderating influences on CE-SOC associations. Consequently, we predict that:

**Hypothesis (H3):** *Environmental hostility positively moderates the relationship between CE and organizational second-order R&D competence such that increased hostile environment would increase the CE–second-order R&D competence relationship.*

**Hypothesis (H4):** *Environmental hostility positively moderates the relationship between CE and organizational second-order marketing competence such that increased hostile environment would increase the CE–second-order marketing competence relationship.*

In the same vein, for organizational SOC's, to work as growth instruments and as VRIN resources, it is fundamental that a firm's structure, embodying them, be accounted for. It is our second added contingency factor, and with a predicted particular negative influence on an entrepreneurial action –SOC output, that decision makers must pay attention to as they solicit strategic entrepreneurial aspirations to fruition. Therefore, our second group of hypotheses predicts that:

**Hypotheses (H5):** *Organizational structure negatively moderates the relationship between CE and second-order R&D competence.*

**Hypotheses (H6):** *Organizational structure negatively moderates the relationship between CE and second-order marketing competence.*

### **METHODOLOGY**

Our level of analysis is the firm. We test our model in an empirical context whereby the sample is derived from various knowledge-intensive sectors. We collected data using web-based survey. In line with similar entrepreneurship research, our addressed respondents were most knowledgeable person inside the organization –the CEO or an executive board member. After contacting 94 companies, only 37, from three knowledge-intensive sectors- Healthcare, IT and telecommunication- accepted to participate, and our final sample had 75 respondents. Given the nature of model employed construct measurements, we used CFA and ordinal logistic regression modeling to test proposed model hypotheses.

### **CONCLUSION**

In our study, we propose not only a theory-compelling model, but also one that lends itself to empirical testing. It extends our understanding on how and in which way competitiveness of entrepreneurial firms differ based on the important association between an entrepreneurial posture and competence development. Building on RBV and Schumpeterian competition, and inspired by Zahra and colleagues (1999), we not only theoretically bridge, but also measure the magnitude of the effect of what and how R&D and marketing SOC's are influenced, in part by organizational entrepreneurial activities, and in part, by account s of contingent interplay. We partially answer the call that entrepreneurship research is in need to account for promising emerging phenomenon as explained by contemporary perspective (Barney et al, 2011; Zahra, 2007). This study probes for many such research avenues as to not only further unveil other SOC's that a firm can develop, but also how such portfolio of competences be monitored and orchestrated in contexts of multinational corporations and in developing economies. Also, further research could examine same contingences discussed in this study, along with various knowledge-based capital of the firm such as human capital, social capital, or organizational capital, organizational knowledge creation, or alliance portfolio as factors with impact on CE and SOC associations. These are critical and important questions that can inform and benefit managers from proposed model in this study. Our model could be used as measurement tool to examine, assess and gauge the impact of entrepreneurial growth strategies on

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a firm's competences that ultimately and necessarily influence performance. In closing, perhaps it takes more than two to Tango. The swinging, bouncing, and sliding between entrepreneurial actions of the firm with either of its SOC's is an organizational Tango that performs according to rhythm of environment competitiveness and the tempo of a firm's structure dynamics.

### REFERENCES

- Alvarez SA, Barney JB. 2001. How entrepreneurial firms can benefit from alliances with large partners. *The Academy of Management Executive* **15**(1): 139–148.
- Alvarez SA, Busenitz LW. 2001. The entrepreneurship of resource-based theory. *Journal of management* **27**(6): 755–775.
- Amit R, Schoemaker PJH. 1993. Strategic assets and organizational rent. *Strategic Management Journal* **14**(1): 33–46.
- Barney J. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management* **17**(1): 99–120.
- Barney JB. 1986. Types of competition and the theory of strategy: Toward an integrative framework. *Academy of management review* **11**(4): 791–800.
- Barney JB, Ketchen DJ, Wright M. 2011. The Future of Resource-Based Theory. *Journal of Management* **37**(5): 1299–1315.
- Barreto I. 2010. Dynamic Capabilities: A review of past research and an agenda for the future. *Journal of Management* **36**(1): 256–280.
- Bierwerth M, Schwens C, Isidor R, Kabst R. 2015. Corporate entrepreneurship and performance: A meta-analysis. *Small Business Economics* : 1–24.
- Burns TE, Stalker GM. 1961. *The management of innovation*. Tavistock: London.
- Covin JG, Lumpkin GT. 2011. Entrepreneurial Orientation Theory and Research: Reflections on a Needed Construct. *Entrepreneurship: Theory & Practice* **35**(5): 855–872.
- Covin JG, Miller D. 2014. International Entrepreneurial Orientation: Conceptual Considerations, Research Themes, Measurement Issues, and Future Research Directions. *Entrepreneurship Theory and Practice* **38**(1): 11–44.
- Danneels E. 2002. The Dynamics of Product Innovation and Firm Competences. *Strategic Management Journal* **23**(12): 1095–1121.
- Danneels E. 2008. Organizational antecedents of second-order competences. *Strategic Management Journal* **29**(5): 519–543.
- Danneels E. 2015. Survey measures of first- and second-order competences. *Strategic Management Journal* : forthcoming.
- Dess GG, Ireland RD, Zahra SA, Floyd SW. 2003. Emerging issues in corporate entrepreneurship. *Journal of Management* **29**(3): 351–378.
- Eisenhardt KM, Martin JA. 2000. Dynamic capabilities: what are they? *Strategic Management Journal* **21**(10): 1105–1121.
- Kokash R, Fayolle A, Guedri Z. 2016. The Effects of Corporate Entrepreneurship and Organizational Knowledge Creation on Firm Second-order Competences: Exploratory Evidence from Knowledge-intensive Sectors. *International Business Research* **9**(8): 46–63.
- Kokash R, Guedri Z. 2013. The Effect of Corporate Entrepreneurship and Organizational Knowledge Creation on Firm second-order Competences: Evidence from Knowledge-Intensive sectors. In *Paper presented at the SMS Annual Conference, Atlanta, GA*.
- von Krogh G, Battistini B, Pachidou F, Baschera P. 2012. The changing face of corporate venturing in biotechnology. *Nature biotechnology* **30**(10): 911–915.
- Levinthal DA, March JG. 1993. The myopia of learning. *Strategic Management Journal* **14**(S2): 95–112.
- March JG, Simon HA. 1958. *Organizations*. Wiley: New York.
- Miller D. 2011. Miller (1983) Revisited: A Reflection on EO Research and Some Suggestions for the Future. *Entrepreneurship Theory and Practice* **35**(5): 873–894.

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- Mintzberg H. 1973. Strategy- Making in Three Modes. *California Management Review* **15**(2): 44–53.
- OECD. 2005. *OECD Science, Technology and Industry Scoreboard*. OECD Publishing, Paris: 181–183.
- Penrose ET. 1958. *The theory of the growth of the firm*. Wiley: New York.
- PhRMA. 2014. *2014 Biopharmaceutical Research Industry Profile*. Pharmaceutical Research and Manufacturers of America, Washington, DC.
- Schumpeter J. 1934. *The theory of economic development*. Harvard University Press: Cambridge, MA.
- Thompson JD. 1967. *Organizations in action*. MacGraw-Hill: New York.
- Thompson VA. 1961. *Modern organization*. Knopf: New York.
- Wernerfelt B. 1984. A Resource-Based View of the Firm. *Strategic Management Journal* **5**(2): 171–180.
- Wiklund J, Davidsson P, Audretsch DB, Karlsson C. 2011. The Future of Entrepreneurship Research. *Entrepreneurship Theory and Practice* **35**(1): 1–9.
- Zahra SA. 2007. Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing* **22**(3): 443–452.
- Zahra SA. 2015. Corporate entrepreneurship as knowledge creation and conversion: the role of entrepreneurial hubs. *Small Business Economics* **44**(4): 727–735.
- Zahra SA, Nielsen AP, Bogner WC. 1999. Corporate Entrepreneurship, Knowledge, and Competence Development. *Entrepreneurship: Theory and Practice* **23**(3): 169–189.